

DURAGRIT®

DURAGRIT® Crystal Blade Glass Abrasive is a 100% recycled crushed glass abrasive grit developed and manufactured in Malaysia. DURAGRIT® Crystal Blade Glass Abrasive is a genuine eco-friendly glass material which can be used for abrasive blasting, refractory and investment casting.

DURAGRIT® Crystal Blade Glass Abrasive contains 0% free silica and has a mohs hardness above 6.0. It is also non-reactive and free of chloride and salts. With its excellent “angular” anchor pattern, it has a higher cutting speed and is able to achieve white metal finish. Despite its aggressiveness, it significantly decreases embedment issues, up to 5 times less and it does not embed into wood, and is able to clean surfaces to a high standard without unduly eroding the surface. With these aggressive properties, it has lower consumption rates and is less expensive compared to other abrasives. It is reusable up to 3 times making it a very economical and durable abrasive material suitable for most industrial blasting jobs. This is an excellent multi- purpose abrasive material which can be used as a replacement for many traditional abrasive materials. The federal Occupational Health and Safety Administration (OSHA) has classified the dust created from glass blasting as a “*nuisance dust*” and does **NOT** contribute to the lung disease, silicosis. However dust resulting from surface cleaning with sand (crystalline silica) is considered a contributor to the lung disease, silicosis. (29CFR1910.1000)

Size Distribution of DURAGRIT® Crystal Blade Glass Abrasive

Mesh Size	Sieved Micron (µm)	Weight Retained, %	Cumulative Retained, %	Weight Passing, %
18	1000	42.1	42.1	57.9
20	850	12.3	54.4	45.6
30	710	12.7	67.1	32.9
35	600	6.2	73.3	26.7
40	500	2.4	75.7	24.3
50	425	12.2	87.9	12.1
60	300	5.6	93.5	6.5
70	250	5.4	98.9	1.1
80	180	1.0	99.9	0.1
pan	Pan	0.1	100.0	0.0

Mesh sizes available for DURAGRIT® Crystal Blade Glass Abrasive

10 – 20 Mesh	80 – 100 mesh
20 – 60 Mesh	100 – 200 mesh

Physical Properties

Name	DURAGRIT® Crystal Blade Glass Abrasive
Item	
Shape	Angular
Hardness	Min 6
Microstructure	Amorphous – Quartz
Density (kg/m ³)	2.17 x 10 ³

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Chemical Composition

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TEST RESULTS

Table 1. Specification and test results

Test No.	Description	Test Method	DuraGrit Crystal Blade Grit
1.	Determination of apparent density,(kg/m ³)	ISO 11127-3	2.17 x 10 ³
2.	Assessment of hardness by a glass slide test	ISO 11127-4	Min. 6
3.	Determination of chemical composition (%) I. SiO ₂ II. Al ₂ O ₃ III. Na ₂ O IV. CaO V. MgO VI. K ₂ O VII. Fe ₂ O ₃ VIII. Cr ₂ O ₃ IX. SO ₃	X-Ray Fluorescence Spectrometer (XRF)	69.7 2.10 20.2 2.18 4.58 0.44 0.21 0.01 0.53
4.	Determination of crystalline phase	X-Ray Diffractometer (XRD)	Amorphous – Quartz
	Determination of free silica (%)		0.0



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Features and Performance of DURAGRIT® Crystal Blade Glass Abrasive

DURAGRIT® Crystal Blade Glass is made of 100% crushed glass. The glass materials we used have these outstanding characteristics.

1. Stable chemical composition and non-reactive
2. Chloride free and low conductivity
3. 0% Free Silica
4. Able to clean surfaces to high standards without unduly eroding the surface
5. Can easily achieve Sa3 white metal finish

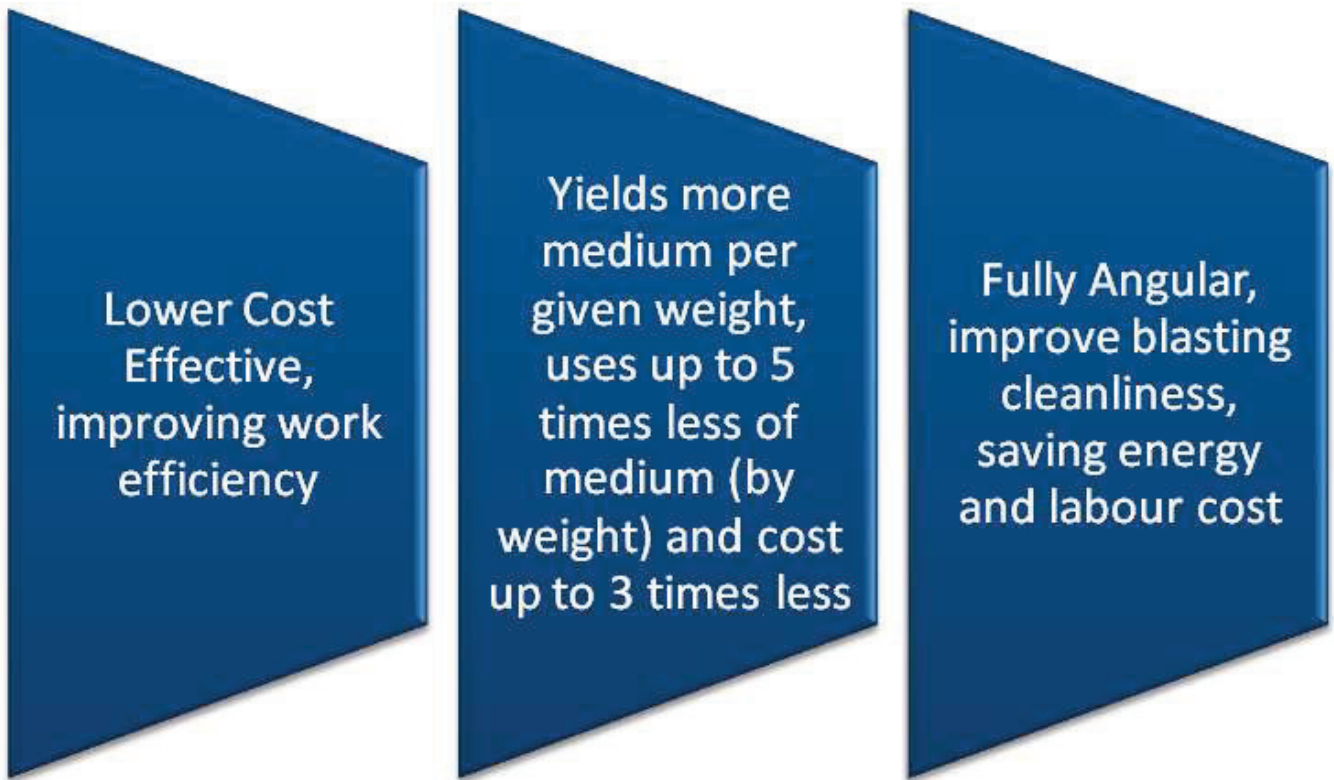
Our DURAGRIT® Crystal Blade Glass Abrasive has excellent features and performance and is applied to daily blasting process and pre-treatment before coating, meeting PSPC (Performance Standard of Protective Coatings) standard and other different requirements of the customers. With an efficient process and outcome, our DURAGRIT® Crystal Blade Glass Abrasive is well endorsed by our business partners locally and internationally.

Comparison between DURAGRIT® Crystal Blade Glass Abrasive and Garnet

Item	DURAGRIT® Crystal Blade Glass Abrasive	Garnet
Material	Recycled Crushed Glass Bottles	Iron Aluminium Sillicate
State	Crushed	Sintered pieces, targets, granules and various powder sizings
Appearance	Full Angular	Angular
Technique	Empty Bottled glass is crushed to grit and heat treated	Mined, Washed, crushed, processed and screened
Density	$2.17 \times 10^3 \text{ kg/m}^3$	$4.20 \times 10^3 \text{ kg/m}^3$

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Advantages of DURAGRIT® Crystal Blade Glass Abrasive



Grades & Profile Results

Mesh Size	Crystal Blade 10 – 40 mesh	Crystal Blade 20 – 40 mesh	Crystal Blade 40 – 70 mesh	Crystal Blade 70 – 100 mesh
Surface Profile	4.5 to 5 Mils of surface profile	2.5 to 3.5 Mils of surface profile	1 to 2.5 Mils of surface profile	0.8 to 1.5 Mils of surface profile
Average Particle Size	1151 microns	616 microns	261 microns	171 microns

Applications

Shipbuilding	Cold rolled steel
Container	Construction machinery
Oil and Gas Pipeline	Aeronautic
Oil and Gas Platform Maintenance	Steel Structures Surface preparation
Locomotive and wagon	Stainless Steel
Surface pre-treatment and casting	Bridge and steel Construction

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Tips for Blasting with Glass Abrasive

- You do **NOT** want a lot of abrasive in the air stream. The grains collide with themselves, lose energy, and hit your surface with less impact.
- Your goal is to not be able to see the abrasive in the air stream. If you can see it, meter back, as you have too much abrasive going through your hose.
- Start by purging your line so it is abrasive free. Then slowly open the feed until you can see the abrasive in the air stream. Then slowly close the feed until you can no longer see the abrasive in the air stream. This is what you want.
- If you have too little abrasive in the air stream, you will likely hear a high pitched whistling sound. Start over and this time repeat the process slower so you can see when the abrasive is no longer visible in the air stream. Be Stingy! You will achieve better results with a lean supply.
- Move your nozzle faster than you normally would. Glass abrasive blasts very fast, very clean. You will be surprised how light and sharp it is, and how much feathering you get with it.
- Blasting hard mil scale will require a finer grit size, as it cuts more like a knife than a hammer. This is why it is great for softer, elastomeric coatings that often bounce back heavier abrasives.
- Blast at a 90 or 100 psi, or less. Higher pressure will be counterproductive due to how light glass abrasive is. You will simply shatter the glass rather than allow it to work for you.
- You can use a finer size than you would normally use.

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Recommendations & Instructions for blasting using DURAGRIT® Crystal Blade Glass Abrasive

DURAGRIT® 10-20 mesh size

1. The Air Pressure **shall be** 90psi – 125psi and air pressure **shall be** consistent during blasting process to create Grades of surface finish **SSPC - SP10 / ISO 8501-1- Sa 2.5 / NACE No 2** and to avoid surface embedment. Fan Cooler or After Cooler **shall be used** during the blasting process to meet the surface profile average of **95μ to 120μ** microns if the air pressure and air cooling system match the Product Manufacture Recommendation requirement.
2. The blasting nozzle angle **shall be at** 45° degree during blasting process.
3. The blasting nozzle distance **shall be at** 1 foot away from blasting surface.

DURAGRIT® 20-40 mesh size

1. The Air Pressure **shall be** 90psi – 100psi and air pressure **shall be** consistent during blasting process to create Grades of surface finish **SSPC - SP10 / ISO 8501-1- Sa 2.5 / NACE No 2** and to avoid surface embedment. Fan Cooler or After Cooler **shall be use** during the blasting process to meet the surface profile average of **90μ to 100μ** microns if the air pressure and air cooling system match the Product Manufacture Recommendation requirement.
2. The blasting nozzle angle **shall be** 45° degree during blasting process.
3. The blasting nozzle distance **shall be** 1 foot away from blasting surface.

DURAGRIT® 20-60 mesh size

1. The Air Pressure **shall be** 90psi – 100psi and air pressure **shall be** consistent during blasting process to create Grades of surface finish **SSPC - SP10 / ISO 8501-1- Sa 2.5 / NACE No 2** and to avoid surface embedment. Fan Cooler or After Cooler **shall be use** during the blasting process to meet the surface profile average of **50μ to 70μ** microns if the air pressure and air cooling system match the Product Manufacture Recommendation requirement.
2. The blasting nozzle angle **shall be** 45° degree during blasting process.
3. The blasting nozzle distance **shall be** 1 foot away from blasting surface.

*Note: DURAGRIT® Crystal Blade Glass Abrasive is suitable to be used on Carbon Steel, Stainless Steel, Low Alloy and Copper Nickel.

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Orifice Diameter

Nozzle Pressure

Nozzle Size	Orifice Diameter		Nozzle Pressure							Minimum CPF Required
	inches	mm	50	60	70	80	90	100	125	
#6	3/8"	9.5	110	124	145	160	175	200	275	
#7	7/16"	11	150	170	200	215	240	255	315	
#8	1/2"	12.7	200	225	250	275	300	340	430	
#9	5/8"	16	300	350	400	450	500	550	700	
#10	3/4"	19	430	500	575	650	700	800	1100	

DURAGRIT® Abrasive Mesh Size#	Air Pressure Requirement	Blasting Nozzle Angle	Blasting Nozzle Distance	Blasting Nozzle Size		
Mesh Size 10-20#	90psi to 125psi	45° Degrees	1 Foot away from the blasting surface	#9	5/8"	16mm
Mesh Size 20-40#	90psi to 100psi	45° Degrees	1 Foot away from the blasting surface	#7	7/16"	11mm
Mesh Size 20-60#	90psi to 100psi	45° Degrees	1 Foot away from the blasting surface	#6	3/8"	9.5mm

DURAGRIT® Abrasive Mesh Size#	Air Pressure Requirement	Coating System PTS 30.48.00. 31 September 2012	Grades of Surface	Surface Profile Average
Mesh Size 10-20#	90psi to 125psi	System3A, 3B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 95µ to 120µ
Mesh Size 10-20#	90psi to 125psi	System4A, 4B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 95µ to 120µ
Mesh Size 10-20#	90psi to 125psi	System20A	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 95µ to 120µ
Mesh Size 10-20#	90psi to 125psi	System22C	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 95µ to 120µ

DURAGRIT® Abrasive Mesh Size#	Air Pressure Requirement	Coating System PTS 30.48.00. 31 September 2012	Grades of Surface	Surface Profile Average
Mesh Size 20-40#	90psi to 100psi	System3A	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 75µ to 100µ
Mesh Size 20-40#	90psi to 100psi	System3B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 75µ to 100µ
Mesh Size 20-40#	90psi to 100psi	System4A	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 75µ to 100µ
Mesh Size 20-40#	90psi to 100psi	System4B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 75µ to 100µ
Mesh Size 20-40#	90psi to 100psi	System14A(3),16C,19B,19D	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 75µ to 100µ

DURAGRIT® Abrasive Mesh Size#	Air Pressure Requirement	Coating System PTS 30.48.00. 31 September 2012	Grades of Surface	Surface Profile Average
Mesh Size 20-60#	90psi to 100psi	1A, 1B, 2A, 2B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 50µ to 80µ
Mesh Size 20-60#	90psi to 100psi	5A(1), 5A(2)	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 50µ to 80µ
Mesh Size 20-60#	90psi to 100psi	6A,7A(1), 7A(2), 7A(3)	Sweep Blast Only	Average 25µ to 30µ
Mesh Size 20-60#	90psi to 100psi	8A, 8B, 11, 13A,14A(1), 14A(2)	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 50µ to 80µ
Mesh Size 20-60#	90psi to 100psi	16A,16B,17A,18A,19A, 19C, 21A,21B,22A, 22B	SSPC SP-10/ ISO 8501-1 Sa 2.5 / NACE NO 2	Average 50µ to 80µ